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One of the teams of sprayers who fought coffee rust in Nicaragua last winter.

South America's 'Big Four' Expand Cotton Output

By Joseph H. Stevenson
and Christopher E. Goldthwait

In view of the sharp reduction in world cotton stocks over the last 2 seasons and the relatively tight world supply and demand situation for cotton, production has taken on added significance. This is also true for the four largest cotton-producing countries in South America—Argentina, Brazil, Colombia, and Peru. There, cotton remains important despite increasing attention given to food and feed crops, and production rose in all four countries during 1976/77. Output will continue at high levels during 1977/78, and increasing amounts of it will be shipped either in the form of raw cotton or textile exports.

Responding to relatively high prices and the tight world supply situation, the four largest cotton-producing countries in South America—Argentina, Brazil, Colombia, and Peru—will register production gains in the current 1976/77 season, with further increases expected in 1977/78.

Likewise, exports of several of these producers can be expected to increase. The four Southern Hemisphere countries expect to ship a combined 915,000 bales (480 lb net) of raw cotton, and to benefit from the same conditions that have prompted gains in U.S. cotton exports this year (an expected 5.1 million bales, up from 3.3 million in 1975/76). In 1977/78, exports from the four countries may rise to 1.2 million bales.

Cotton is important to these countries because of the foreign exchange earned—not only from raw cotton exports, but from textile exports as well. Brazil, Colombia, and Peru are exporting increasing amounts of cotton as textiles. With textile exports being encouraged, there is little doubt that in times of tight supply, domestic textile industries in these countries will receive priority over raw cotton exports.

Textile exports compete with U.S. raw cotton exports because the textiles dampen demand for raw cotton by spinning industries in the countries that import the textiles.

The combined 1976/77 cotton outturn of these four countries is placed at nearly 4 million bales, compared with 3.3 million a year earlier. Of the 1976/77 total, Brazil will be the leading producer with 2.2 million bales, followed by Argentina at 825,000, Colombia at 600,000, and Peru at 350,000.

Cotton is a well-established cash crop, and farmers in all four countries are generally responsive to price, with governmental policies also pivotal in determining output and usage. Attractive world prices, such as those prevailing recently, will probably result in larger cotton area and production.

Weather, too, plays an important role in the final outturn of South American cotton—except in Peru, where almost all cotton is irrigated. Drought has reduced the 1976/77 yields in Colombia, and Argentina often experiences weather that is either too wet or too dry.

Recently, the unusually hot, dry weather in south Brazil raised fears that as much as 10-15 percent of the 1976/77 crop may be lost.

How cotton is affected by competing crops varies considerably. For instance, soybeans are a big competitor in south Brazil; sunflowers compete strongly in Argentina. In areas of Colombia—and in south Brazil — coffee competes with cotton for available labor at harvest.

The rising cost of growing cotton is another important factor. This is particularly true as farmers decide how much cotton to plant when the price is low, vis-a-vis other crops. Labor costs are generally much lower and inputs such as machinery and insecticides are sometimes more expensive than they are in the

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United States.

In **Brazil**, area and production have risen significantly during the current 1976/77 season, largely as a result of higher minimum producer prices set by the Government in August of 1976. This season's minimum price of 54 U.S. cents[1] per pound for southern-zone seed cotton is 71 percent greater than the 1975/76 price.

Market prices for cotton, which have less impact on producers, are even higher. In the south, which produces about two-thirds of Brazil's total output, cotton area expanded about 25 percent in 1976/77 to 775,000 hectares despite attractive prices for soybeans, cotton's chief competing crop.

Total cotton area in all of Brazil this season is estimated at 2.0 million hectares, compared with 1.8 million a year ago. Brazilian cotton production is expected to reach 2.2 million bales, a gain of 23 percent from last season's.

Although several factors influence cotton area and production in any given season, Government policy—expressed through the producer minimum price—is one of the most important. This is especially true when Brazilian farmers compare producer prices of cotton and competing crops in terms of expected yields for each crop.

Besides soybeans, cotton's competitors include sugarcane, coffee, citrus, and wheat grown on soy areas after soybeans are harvested.

Interplanting of several of these crops is not uncommon, even in the south. Fertilizer and pesticide use, which influence yields, has been trending upward in recent years. The Government, however, recently reduced its 40 percent subsidy on fertilizer to just 15 percent.

Labor costs also affect Brazil's cotton-production trends. These costs are rapidly increasing and probably will result in more mechanical harvesting in the future.

Still, Government policy seems to favor some cotton expansion in order to meet domestic demand and, perhaps, to continue exporting. One source predicts that Brazil's cotton outturn will grow moderately during the next 5 years, with average increases of 5-15 percent annually.

Consumption trends in Brazil depend on the continued supply of domestically grown fiber, the steady growth of a delicate economy, and governmental encouragement through favorable credit terms for investments.

Several factors favor a moderate increase in consumption. First, Brazil is a country with a growing population and economy, so demand for textiles will also continue to grow. Secondly, representatives of Brazilian textile companies plan continued growth and plant modernization. Also, there appears to be a trend toward fewer, larger, and more integrated textile firms, making internal financing possible.

Also, cotton in Brazil does not face strong competition with manmade fibers. Cotton's price, sheltered by import regulations, is about half the price of domestically manufactured polyester fiber. Polyester, costing about $1.65 per pound when made domestically, can be imported at world prices only under drawback arrangements—that is, only if used to make end products for export.

Cotton in Colombia being loaded for export. Employing modern production methods, Colombia now ranks as a major cotton exporter. This expanding export trade has accompanied the growth of the country's cotton production over the past decade.

[1]**Based on exchange rate of 12.98 cruzeiros = US$1.**

Colombian cotton bales being prepared for shipment to markets. Like some other major producers, Colombia exports not only raw cotton, but increasing amounts of cotton in the form of textiles.

While backed by Government policy, textile export priorities remain unclear. Many reports indicate lowered exports during calendar 1976, although tax advantages continued to favor exports of yarn, cloth, and other textiles over those of raw cotton.

So far this season, Brazil has exported very little raw cotton. The high level of domestic prices — above world levels since February 1976 — and the 13 percent value-added tax on raw cotton exports imposed in 1976, have limited sales abroad to only a few thousand bales.

With domestic prices falling, some exporters are beginning to write contracts, but most are waiting for a Government decision on the value-added tax.

Because the Government wants to keep cotton imports at a minimum, only small quantities are imported each year, with almost all of these coming from the Latin American Free Trade Association (LAFTA) partners under drawback terms.

Domestic prices for cotton began falling last September in anticipation of the larger crop that reached the market this spring. Still, they have been higher than minimum producer prices and world levels for nearly a year. During February 1977, the average price of 74 U.S. cents per pound for São Paulo cotton, Standard Type 5 grade, was just above the world price.

Domestic prices had risen earlier because of the drawdown on the large 1975/76 beginning stocks of 1.9 million bales and heavy demand from mills. Now, stocks are expected to return to more normal levels of 1.4-1.5 million bales by August 1, 1977.

The cotton story in **Argentina** is one of unfulfilled potential, similar to that found in other sectors of the country's economy. While Argentina has large areas of good cotton land, low inputs and yields result in only moderate production.

This season's cotton area rose 34 percent from last year's to 580,000 hectares, as drought prevented normal planting of sunflowers. Lint cotton production is pegged at 825,000 bales, up from 611,000 bales last season.

Argentina's cotton outturn fluctuates greatly because of weather and area variations. Thus, the country's production is not likely to follow a particular pattern in the near future. Although a small drop in cotton area may occur next season if more land returns to sunflowers, the overall trend points slightly upwards for the next several seasons. This expected upturn is based primarily on two factors.

- Some increases in fertilizer and pesticide usage may raise yields;
- Interest is increasing in growing cotton under irrigated conditions in provinces west of the traditional cotton region.

Another positive feature of Argentine cotton is the growth in staple length. While most cotton 10 years ago was less than an inch, the modal length now falls between 1 and 1 1/16 inches.

Presently, most cotton is grown in the country's far north, in Chaco and Formosa Provinces, near the Paraná River and in small riparian areas of neighboring provinces. The hot, humid climate is well suited for cotton, although the

land can be swampy and occasionally floods. Sunflowers and grain sorghum are cotton's major competitors in these areas.

Variable rainfall, very important in Argentina, makes farmers diversify plantings among all three crops, thus ensuring against the loss of any one. In determining plantings, farmers are mostly influenced by the weather and crop prices of the previous season. Despite all these variables, cotton area has rarely dipped below 400,000 hectares recently.

Meanwhile, Argentine's textile industry has stagnated from depressed demand resulting from a 300-percent annual inflation rate and a weak domestic economy. Annual mill consumption has stabilized at about 110,000 metric tons, of which 10 percent is imported extra-long-staple cotton.

A new problem facing the industry this season is the loss of the right to purchase, at preset prices, its requirements from domestic production prior to the release of any surpluses for export. This means that mills must compete with other buyers at world prices. Argentina may be forced to import cotton for mill use later in 1977 if too much domestic cotton is exported.

On the export side, great variation exists as well. After domestic needs had been met in recent years, export supplies were residual, usually consisting of small lots of poorer qualities. However, the shift to a free market policy and the increase in production this season have coincided with tight world supply to create greater foreign demand for Argentina cotton. By mid-March 1977, about 200,000 bales had been sold forward out of a potential surplus of over 350,000 bales.

Cotton producers and merchants may favor foreign buyers, who purchase f.o.b., Buenos Aires, at world prices with prompt payment. In contrast, domestic buyers need extensive credit and pay in full only after several months. Their financial problems could lead them to urge the Government to limit exports.

In coming years, cotton production and the health of Argentina's textile industry should strengthen as agriculture and consumer demand grow. After years of policies favoring the industrial sector over farming, many Argentine businessmen hope the free-market approach of the year-old Government will help boost agriculture and related industries. It is in these sectors that Argentina has a comparative economic advantage based on the country's extensive land resources.

In **Peru**, cotton is the natural choice of farmers and climate, and farmers are familiar with the crop. All cotton, except a small quantity of Aspero cotton (medium staple) is grown in irrigated coastal valleys.

Production this year has jumped about 28 percent to an estimated 350,000 bales, largely as a result of harvesting two crops on the same land in Piura, where a new irrigation system has been completed. This, however, will be a onetime occurrence.

Despite this year's increase, cotton production has trended downward since the 1968 change in government. This change ushered in land reform, followed by some readjustments in agriculture. Large, economical farms became cooperatives owned by the previous tenants. Much of the capital, farming knowledge, and managerial skill disappeared when the former proprietors left. This led to a decrease in the use of inputs, chronic labor problems, and an inability to modernize ginning equipment or make other extensive investments without Government aid.

While there are signs of improvement in these conditions, problems of a more permanent nature persist. In some areas, soil conditions require extensive fertilizer usage and high nitrogen application. Insect infestation—particularly from Peruvian boll weevil and boll worm—can become severe. Heavy insecticide applications are often needed. Since coastal cotton areas are irrigated, soil salinity, as well as wilt and nematodes, can be a problem.

Another brake on Peruvian cotton production is the Government's requirement that 40 percent of the land must be sown to food crops. This tends to limit cotton area at present levels—far below potential. Thus, expansion can come only through slow extension of irrigation systems in a country where water availabilities are restricted.

While future trends are hard to predict, the best estimate is for small production increases through expanded irrigation and slight increases in yields.

The Peruvian Government provides aid to its cotton farmers through two organizations: Fundación para el Desarrollo Algodonero (FUNDEAL), a quasi-governmental advisory service on all aspects of cotton production; and Empresa Publica del Sector Comercio (EPCHAP), the purchasing and export agency for cotton and other commodities.

EPCHAP buys all cotton from farmers at calculated

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basic producer prices, and classes it. Domestic needs are filled at prices high enough above producer prices to cover administrative costs. After domestic needs are met, the rest is exported at world prices. Any export revenues above the level of producer prices are passed on to farmers, with small deductions for research and a stabilization fund. The stabilization fund is designed to guarantee farmers the basic producer price if world prices tumble. Officials of EPCHAP have expressed interest in obtaining CCC credit to import U.S. upland cotton for domestic use, thus freeing Peruvian cotton for export. Peru's fumigation requirements for imports, however, may be a problem in this area.

Domestic consumption, rising slowly in recent years, is forecast at 160,000 bales in 1976/77, compared with 150,000 a year ago. This upturn results from newly opened mills and equipment modernization elsewhere.

Exports are also climbing after a recent downtrend resulting from falling production and rising consumption. Exports from the current season are estimated at 165,000 bales, an increase of 9 percent over those of 1975/76.

Colombia has moved in the past 18 years from bare self-sufficiency into the ranks of major cotton exporters. Exports, peaking at 449,000 bales in 1974/75, are estimated at 245,000 bales in 1976/77, down 19 percent from last year's.

As with other producing countries, Colombia is increasingly exporting cotton in the form of textiles, including finished apparel. Continued expansion in cotton production should enable the country in the near future to provide cotton for both domestic use and exports at current or higher levels.

Production for the 1976/77 season is placed at 600,000 bales, compared with 695,000 a year earlier. If world prices remain firm, 1977/78 prospects point to a large expansion of cotton area in a country where production is both modern and progressive. Adequate usage of insecticides and fertilizers produces good yields. Also, machine harvesting—currently covering about 5 percent of the Colombian crop—appears almost certain to develop more rapidly here than elsewhere in South America.

Several semi - Governmental groups handle most of the marketing of Colombian cotton. The largest of these is the National Cotton Federation, representing about 75 percent of the country's growers. Among the Federation's services are seed quality control and seed testing, as well as recommendations on insecticides, fertilizers, and ginning. Farmers are paid at prices prevailing in the north European market, minus charges for transport and Federation services.

The Federation and similar groups dispose of cotton—for exports through sales to merchants and for domestic use through sales to another quasi-Governmental unit Distribuidora Nacional de Algodón (DIAGONAL), which largely represents mill interests.

Cotton consumption has grown rapidly over the past decade as Colombia boasts a well-developed textile industry for natural and manmade fibers. Consumption in 1976/77 is estimated at 330,000 bales, up from 315,000 last season, partly as a result of expanded textile exports. The uptrend of the past should continue, but at a slower pace. □

Wheat Food Popularity Grows in South Korea

If you stopped and asked a South Korean housewife on the streets of Seoul, the chances would be good that she has seen one of the wheat flour demonstrations staged jointly by Wheat Associates, USA and the Korean Flour Mills Industrial Association. Or, she knows someone who has been to one of these food exhibitions, now in their ninth year of promoting wheat foods throughout the country. In fact, nearly 13 million Korean housewives have heard of the wheat flour recipes featured at these demonstrations.

Children about to sample steamed bread in Seoul.

As the popularity of wheat foods continues to grow in South Korea, exports of U.S. wheat have increased to this Asian country, where rice has been the traditional fare.

Giving impetus to this uptrend in wheat consumption have been wheat flour demonstrations, conducted jointly by Wheat Associates, USA and the Korean Flour Mills Industrial Association (KOFMIA). Wheat Associates is a Foreign Agricultural Service (FAS) cooperator in overseas market development activities.

After the Korean Government enacted a resolution in 1968 to conserve rice and promote wheat flour foods, these food demonstrations were started in February 1969. Through November 1976, they had reached some 2.5 million Korean housewives, who personally observed wheat food preparation by nutritionists and home economists. In addition, an estimated 10 million housewives had been exposed to wheat flour recipes, featured at these food exhibitions.

The success of these demonstrations, now in their ninth year, is illustrated by consumption statistics. In 1968, Korea's per capita wheat flour consumption was only 17.7 kilograms. Averaging an annual growth of over 12 percent, consumption by 1975 had nearly doubled to 33.2 kilograms. A 1973 survey by an independent research organization found that families of housewives exposed to the demonstrations consumed 19 percent more wheat flour during the preceding year than families not reached by the demonstrations.

Paralleling the rise in consumption, U.S. wheat exports to South Korea in 1976 were about 124 percent greater than those of 1968. That year, Korea purchased 897,859 tons of wheat, including 464,460 tons of Western White (WW), 425,400 tons of Hard Winter Ordinary (HWO), and 7,999 tons of Dark Northern Spring (DNS). In 1976, Korea purchased 2,013,100 tons of wheat, including 1,250,000 tons of WW, 669,500 tons of HWO, and 86,600 tons of DNS. In both years, all of Korea's wheat imports came from the United States.

Of all the wheat-food promotions in Korea, the cooking demonstrations were considered one of the best ways of reaching the maximum number of people at minimum costs.

The most common method of setting up a demonstration is to rent a public hall, accommodating 300 to 600 people. These meetings are well advertised in advance, either in newspapers or through the distribution of leaflets. Depending on location, each demonstration lasts 1 or 2 days, with the same city being visited two or three times a year. In rural areas, the city mayor usually opens the session with a speech stressing the importance of wheat flour foods in the Government program to conserve rice.

An average 1-day meeting, generally conducted by a demonstrator and two assistants, involves seven to 10 recipes, covering loaf bread, dumplings and meat-filled dumplings, sandwiches, spaghetti, noodles and fried noodles, cake, doughnuts, pie, cookies, and steamed bread. At the beginning of the program, recipe leaflets are passed out, then the food is prepared, samples are given to participants, and time is allotted for a question-and-answer period.

Besides the meetings in public halls, one nutritionist visits towns in a mobile kitchen bus and gives demonstrations in public squares or school yards.

Another method of promoting the use of wheat flour foods in Korea has been the model wheat food center, established jointly by Wheat Associates and KOFMIA. The first one, in 1969, was opened in a large shopping complex in Seoul. During the first 9 months of operation, some 135,000 customers were served at the center. At the time of the Government's 1968 resolution to promote wheat flour foods, Korea had only 144 establishments that served mainly wheat foods. By 1972, wheat food centers numbered nearly 24,000. A survey taken a year earlier revealed that 76 percent of owners or managers of the wheat food centers in Seoul had visited the original model center before opening their establishments.

Together, the touring demonstrations and the food centers have played a major role in increasing consumption of wheat flour preparations in Korea. The most popular items have been various noodle dishes, with meat-filled dumplings and steamed breads being the favorites during the winter season.

The steamed breads, which were created mainly at the food centers and demonstrations, also have become popular snack items for school children.

In appearance, steamed bread is similar to regular leavened white bread dough. Usually made from weak- to medium-strength flour, the bread is steamed instead of baked. Although plain white steamed bread is popular in Chinese restaurants, it is also prepared with various fillings, such as sweet-bean paste, meats, vegetables, and a mixture of meats and vegetables.

As a result of the rising demand for steamed breads in the winter months, mass production bakeries around the country are increasing their output of steamed bread from October-March. Distribution is made to an estimated 100,000 small retail outlets, where the bread is steamed in coal-heated ovens in front of the stores. Pedestrians can buy the bread for 40 Korean won—about 8 U.S. cents. At home, steamed breads, filled with meat and vegetables, are served for a simple lunch or dinner, along with traditional Korean side dishes.

Chinese restaurants in Seoul offer a special meat and vegetable steamed bread, or dumpling, commonly known as *mandoo*. There are about 10,000 Chinese restaurants here in Korea serving various kinds of steamed breads, noodles, and other wheat flour foods. Most of these restaurants make steamed breads the whole year, but winter remains the Korean's favorite season for it. □

"The steamed breads, which were created mainly at the food centers and demonstrations, also have become popular snack items."

Based on report from Seoul by Robert Bratland, Country Director, Wheat Associates, USA.

Japan To Import More Soybeans in 1977

The United States will again be the dominant soybean supplier for Japan, whose soybean consumption and imports are expected to continue upward. Japan's 1977 soybean imports are currently forecast at nearly 3.7 million metric tons, of which 3.4 million will come from the United States. Imports of U.S. soybeans have been trending up in recent years, according to the Japanese Customs Bureau.

Continued improvement in Japan's livestock and poultry sectors leading to increased soybean consumption will push the country's soybean imports up about 3 percent this year. Again, the United States will supply about 92 percent of these imports, according to Larry F. Thomasson, U.S. Agricultural Attaché, in Tokyo.

Japan's Ministry of Agriculture and Forestry has pegged the nation's 1977 soybean imports at 3,662,000 metric tons. As well, soybean ending stocks should jump 11 percent this year to about 400,000 tons.

Rapeseed and palm oil imports, however, should taper off slightly in 1977 as will soybean meal imports, which had zoomed from 18,000 tons in 1975 to 193,000 tons last year.

Then, Japanese soybean imports rose 6.6 percent to 3,554,000 tons, with the U.S. market share amounting to 92 percent. Other major suppliers were Brazil (126,000 tons) and the People's Republic of China (133,000 tons). Because of a poor harvest and the effects of last year's earthquake on marketing channels, the PRC's actual delivery of soybeans fell far short of the anticipated 240,000 tons.

But this year, Japan expects to import only 120,000 tons from the PRC while imports of Brazilian soybeans remain at about last year's level, Thomasson says.

Although imports of soybean oil declined 11.5 percent to 12,300 tons in 1976, soybean meal imports skyrocketed to nearly 11 times the 1975 level. This huge increase resulted largely from unsuccessful efforts of the crushing industry to cut back capacity in order to bring soybean oil production more in line with demand.

Yet, soybean crushings in 1976 remained at the year-earlier level of 2.7 million tons. The result: an oversupply of meal.

However, meal inventory did decline from a high of 79,000 tons in November 1976 to 65,000 tons by year's end. Meal imports this year are forecast at 180,000 tons, a drop of about 7 percent from those of 1976.

Japan's rapeseed imports, up 9 percent last year to 718,000 tons, are expected to fall to about 694,000 tons in 1977, still substantially above the 659,000 tons imported in 1975.

Palm oil imports soared 40 percent last year to 153,500 tons—mainly as a result of palm oil's lower price compared with that of soybean oil, and efforts by Japanese firms to strengthen their investment position in the Malaysian palm oil crushing and refining industry.

To encourage greater soybean and rapeseed production, the Government has annually increased its support level for both crops. Although additional increases are expected this year, it is generally recognized that these support and incentive payments will not result in a substantial diversion of rice to soybeans and rapeseed, Thomasson reports.

Despite a total Government support level, including production incentive payments of $21.28 per bushel for soybeans and $14.49 per bushel for rapeseed, area and production of both crops decreased in 1976.

Last year, soybean area decreased 5 percent to 83,000 hectares while pro-

[1] Based on the 1976 average yen-dollar exchange rate of 297 yen = US$1.

duction slipped 13 percent to 109,500 tons. Further reductions are seen this year to about 100,000 tons from 78,000 hectares.

Likewise, rapeseed area declined 15 percent to 3,740 hectares and output dropped 16 percent to 6,210 tons in 1976

Another 1976 rollback occurred in peanut area and production, which decreased, respectively, 6.7 percent to 37,800 hectares and 7.2 percent to 65,400 tons. As a result, peanut imports rose from 51,200 tons in 1975 to 71,000 tons last year with the U.S. market share being 27,555 tons, or 39 percent. Other major suppliers, with tonnage in parentheses, were: the PRC (15, 541), India, (8,243); Sudan (5,427), and South Africa (4,130).

An increase was registered last year in Japan's soybean ending stocks, which rose 45 percent to 360,000 tons, including 20,000 tons of food-use soybeans held in reserve by crushers under the new Soybean Stable Supply Association (SSSA) program.

In 1977, soybean stocks are expected to rise to about 400,000 tons, including an additional 40,000 tons reserved by the SSSA. Soybean meal stocks, climbing 17 percent to 123,000 tons last year, are predicted to remain unchanged this year.

Rapeseed stocks more than doubled in 1976 to 48,000 tons, compared with 21,000 the year earlier. The level this year, however, is forecast to dip to 40,000 tons.

Consumption data show that over 75 percent of soybean oil used in Japan is consumed directly as cooking or salad oil, with the market almost equally divided between home use (retail sales) and institutional use (restaurants, fast-food outlets, etc.). Of the remainder, about three-quarters is used for food processing and the rest for nonfood usage.

Nearly 90 percent of Japan's use of rapeseed oil is consumed as cooking or salad oil, with the remainder going into food processing. On the other hand, bran oil consumption appears evenly split among cooking or salad, food processing, and nonfood uses, reports Thomasson.

Vegetable oils account for nearly 75 percent of Japan's consumption of edible fats and oils, and about 80 percent of inedible fats and oils. Remaining consumption of each type consists of animal products.

This follows the current trend of consumer preference for unsaturated fats, and less consumption of animal fats and oils.

Crushers are still trying to stabilize wholesale prices of vegetable oils by cutting back plant capacity, which decreased meal production. Thus, wholesale prices of soybeans for food use have been trending upward since January 1976. □

Mexico's Strawberry Crop To Be Up in 1976/77

Mexico's strawberry production is expected to rebound in 1976/77, following a heavily damaged crop last year that was cut by three severe frosts. Export sales prospects also are up for this season, with shipments to the United States expected to more than double.

For the current season, strawberry output is estimated at 93,000 tons; area is higher in the regions around Zamora and Iraputo, and should good weather continue through the rest of the season, fresh and frozen exports may well exceed the 1975/76 level. Farmers have increased plantings, and total area is estimated at 4,600 hectares, compared with 3,900 hectares last season.

Strawberry production in 1975/76 of approximately 58,000 tons was 40 percent below that of 1974/75, when output totaled 96,000 tons. Lower production was the result of frost damage that hit strawberry fields. While frosts are a normal risk factor in the Iraputo area, the third frost of the 1975/76 season resulted in only marginal production during a time of peak output in both Zamora and Iraputo. Besides weather damage, crops were reduced because farmers shifted from strawberries to crops with guaranteed prices.

Consequently, 1975/76 exports of both fresh and frozen berries were far below those of 1974/75. Frozen berry shipments were affected more severely than fresh exports.

Although unusually warm cloudy weather this year has slowed strawberry ripening and delivery to plants, frozen berry exports have not been affected significantly. Exports of frozen strawberries are expected to reach about 51,000 tons, or 92 percent above the 1975/76 level of 26,500.

The United States is Mexico's top customer for frozen berries, with an estimated 39,500 tons destined for the U.S. market in 1976/77 (compared with 17,800 in 1975/76). Larger exports are also expected to Japan and Western Europe —3,200 and 2,000 tons, respectively this year.

Reportedly, U.S. importers' stocks of frozen berries are low, owing to reduced Mexican exports last year.

Mexico's export of fresh strawberries for 1976/77 are expected to reach 13,600 tons, 62 percent higher than the 8,388 tons exported last year. Of this year's total, nearly all (13,000 tons) is expected to be shipped to the United States.

Mexican consumption of both fresh and frozen strawberries is expected to increase this year over last year's low level. At least one large processor is sending more berries to Mexico City for retail sale and is trying to up its market share.

No new processing plants have come into production since last season. Since the devaluation last fall, laborers' wages have increased twice. One processor stated his labor costs have increased by 80 percent, factors that will no doubt affect berry prices.

February prices of fresh and frozen berries at the U.S. border (Laredo) were 70.5 and 81.6 cents per kilogram, respectively, compared with 54 cents and 79 cents, respectively, last season. The Mexican export duties on fresh and frozen strawberries are 9 and 5 percent, respectively.

Based on a dispatch from Richard S. Welton, U.S. Agricultural Attaché, Mexico.

Bergland Cites U.S. World Food Policy

Secretary of Agriculture Bob Bergland, in his June 20 address before the Third Ministerial Session of the World Food Council in Manila, discussed U.S. Administration policy on world food security. The proposal would include a coordinated system of nationally held reserve stocks.

Specifically, the Secretary called for a reserve stock designed to reduce wide fluctuations in market prices, a sharing of reserve stock costs, and an end to interruptions in grain trade. He said food aid and development assistance must also play an important role in helping nations meet basic food requirements. Excerpts follow.

The majority of the world's very poor live in the rural areas of developing countries, and therefore, the basic problems of poverty, unemployment, and hunger cannot be solved without improvements in the agriculture of these countries.

Efforts to increase food production in poor countries must be continued and expanded. Also, serious efforts to improve distribution must be made to assure that food actually reaches the undernourished people.

We welcome the contribution of the Conference on International Economic Cooperation toward our common objectives in food and agriculture.

That conference reaffirmed the need for concerted efforts by all countries to achieve satisfactory rates of food production in the developing countries. It contributed to the establishment of a $1-billion international fund for agricultural development.

The conference also took actions that will contribute to the attainment of an international emergency food reserve coordinated by the World Food Program and will lead to improvement in the availability of essential agriculture inputs.

Agreements were reached on other substantive matters, which need not be debated again in this session. My Government regards the results of this conference as significant and helpful in the task we are continuing in this meeting.

The United States will continue to make a major contribution to programs aimed at promoting agricultural development. The Foreign Assistance Act of 1974 requires that U.S. development assistance focus on helping the poor majority in the poorest countries. The Bilateral Aid Program awaiting final action by the Congress calls for more than $700 million in food and agricultural development programs.

Also, the United States plans to contribute $800 million per year from 1978 through 1980 to the World Bank's International Development Association. About 30 percent of these funds are distributed on a concessionary basis for food and agricultural projects in the most needy countries. Finally, the United States has pledged $200 million to the International Fund for Agricultural Development.

Increased production is central to long-term world food security. But food security also requires assurance that adequate supplies will be available in the event of shortfalls in production caused by weather or other adverse events. Supplies should be adequate to prevent extreme swings in prices that create economic hardship for the poor in all nations and for almost all in poor nations.

In order to improve world food security, the United States already has taken action to establish a domestic foodgrain reserve. This reserve will be accumulated during this period of adequate supplies and low prices for return to the market during periods of short supplies and high prices. We commend the similar actions by other countries such as India, the Philippines, and others.

But food security is not the sole obligation of the United States or a few nations. The world should not want its food security to rest in the hands of a few nations. Responsibility for world food security must be shared widely.

Therefore, the United States hopes the International Wheat Council soon can lay the foundation for negotiations of an agreement which would include a coordinated system of nationally held reserve stocks.

We believe a world food security system should include these features:

- First, a reserve stock mechanism must be designed to reduce wide fluctuations around the long-run trend in market prices. We are willing to consider price indicators to trigger reserve actions.
- Second, the cost of reserve stocks must be shared among both exporting and importing nations. Special provisions should be made to assist poor nations in meeting their share.
- And third, we must prevent interruptions in trade for grains which prevent adjustments in consumption and production in times of extreme surplus and scarcity.

We recognize it will be difficult to negotiate a mutually acceptable scheme for assuring world food security, but we must find means to overcome these difficulties.

The world need not suffer once again the hardship of the world food crisis of 1972-74.

We must find the will and the wisdom to create an international system of world food security in which the burdens of maintaining the system are equitably shared.

We must take advantage of the current easing of supplies to insure that we do not miss an opportunity to achieve this goal.

In addition to reducing wide fluctuations in commercial prices and assuring that grain is always available in commercial markets, the United States recognizes that food aid must play an important role in helping many nations to meet their basic food requirements.

The United States regards food aid as one of its most important contributions to development. Food aid programs should be designed primarily to meet the needs of people in developing countries, not the surplus disposal needs of developed countries.

The United States now is seeking to improve its own

Continued on page 15

Central America Gears To Fight Coffee Rust

As if frosts in Brazil are not worry enough, coffee watchers are now eyeing an insidious coffee-rust fungus, *Hemileia vastatrix*, that hit Central America last winter, 10-15 years ahead of its expected immigration from Brazil. At latest report, the rust still has not spread beyond the original entry point in western Nicaragua, and field inspectors failed to find any coffee rust pustules through early June. But new outbreaks could appear at any time, reports a U.S. Department of Agriculture team back from an assessment of the situation.

Closeup of a coffee leaf infected with rust.

Few disease-control efforts have been so comprehensive or swiftly implemented as Nicaragua's drive last winter to wipe out the coffee-rust fungus that gained a toehold in its far west. Yet the consensus is that a miracle will be necessary to prevent "la roya's" spread to other areas of Central America, and governments there are preparing for a long, hard campaign against this fast-spreading fungus.

Consuming nations, troubled by still high coffee prices, likewise are watching the Central American situation with concern. However, even if rust does spread throughout Central America, its full impact on coffee yields will probably not come for at least 2-3 years, and possibly 5-6 years. By then, Brazil should be fully recovered from the July 1975 frost that devastated coffee trees in its main producing States of São Paulo and Paraná and sent coffee prices spiraling to new highs.

While the countries of Central America do not have the powerful impact on world trade that Brazil has, their combined coffee production and exports are sizable. In 1976, the region produced 8.6 million bags (60 kg each) of coffee—or not much less than the unusually low 9.5 million produced by Brazil—and it is expected to export 7.8 million bags of coffee in 1976/77.

Even more important is the region's considerable impact on the U.S. market—together with Mexico, Central America supplied 22 percent of total U.S. coffee imports last year—as well as its dependence on coffee as a key export crop. During 1971-74, for instance, coffee accounted for an average 44 percent of El Salvador's total export earnings; 31 percent of Guatemala's; 28 percent of Costa Rica's; 16 percent of Honduras'; and 14 percent of Nicaragua's.

Moreover, the $600-million-a-year trade among these countries could be imperiled if the rust problem were to continue for long. Already, several countries have placed restrictions on products moving from Nicaragua, even while there is little likelihood that most of them could transmit the rust.

In the face of these realities, El Salvadoran Agriculture Minister Escobar, during his March 17 meeting with U.S. Agriculture Secretary Bergland, requested that a U.S. coffee-rust team be sent to Central America. As a result, a four-member team visited the disease-affected area of Nicaragua and met with coffee-industry and Government officials in Nicaragua, Guatemala, Honduras, El Salvador, and Costa Rica during April 24-May7, with the goal of discussing disease problems caused by the outbreak, consulting on control measures, and determining the possibility for international technical cooperation.

Team members were Drs. E. P. Imle (leader) and Frances M. Latterell of USDA's Agricultural Research Service and Dr. Carlos J. Rodrigues, Jr., director of the Coffee Rust Research Center of Portugal—a key facility in efforts to breed rust-resistant varieties of coffee. Donald R. Fiester of the U.S. Agency for International Development's regional office in Guatemala assisted the team in Guatemala, Nicaragua, and Costa Rica.

In summarizing the team

By Beverly Horsley, Associate Editor, Foreign Agriculture.

findings, Dr. Imle said: "There is a general acceptance that rust will not be eradicated . . . it will spread . . . and it's probably going to get into Mexico." Colombia likewise is concerned about potential infestation of its coffee areas and has given extensive advice in the fight to halt Nicaragua's outbreak.

Dr. Imle added, however, that experiences so far in Nicaragua have given some reason for optimism.

Nicaragua's rust infestation was discovered last November 23 around the towns of Jinotepe and Diriamba near Lake Nicaragua. Fortunately, the outbreak was in a relatively flat, easily accessible area in the less-important western coffee region, which accounts for only a small percentage of Nicaragua's total coffee output. Had the disease struck across the mountains in eastern Nicaragua, where about 70 percent of the crop is grown, its chances of spread would have been increased manyfold, since the rugged terrain there makes it difficult—and at times impossible—to reach many of the coffee trees.

The outbreak was followed soon by a strong dry season—in fact, the driest one in 80 years—when conditions do not favor its spread. And Nicaragua's Minister of Agriculture Klaus Sengelmann immediately launched one of the most intensive rust-eradication programs yet seen.

This effort involved mobilization of some 1,000 workers, who previously had worked in a malaria-control program, and implementation of the so-called Colombian plan—a detailed program of control drawn up several years ago in anticipation of rust entering Colombia.

Dr. Latterell, who was in the area during early Janu-

Coffee Rust Came West From Africa

Until 1970, when the coffee-rust fungus *Hemileia Vastatrix* was discovered in the Brazilian State of Bahia, coffee rust was a problem unique to the Eastern Hemisphere. It has been spreading for more than a century from the original point of discovery near Lake Victoria in Africa, overtaking coffee industries in Africa, India, Indonesia and other Pacific islands, the Philippines, and the People's Republic of China. In some, like Ceylon (now Sri Lanka), which shifted from coffee to tea production, the disease spelled the end to coffee production entirely; in other nations, such as India and West Africa, producers learned to live with the disease as they adopted rust-resistant varieties, switched from vulnerable Arabica coffees to the more resistant Robustas, launched extensive spraying and quarantine programs and other control measures.

But Western Hemisphere remained free of rust until that Brazilian outbreak in 1970, hardly giving a thought to a disease oceans away in Asia and Africa. The Brazilian outbreak—first discovered on coffee plants by Arnaldo Medeiros, a plant pathologist of the National Cocoa Institute of Brazil on a cocoa inspection trip in Bahia—is believed by some to have started with spores airborne all the way from Africa.

Whatever the cause, the disease by 1972 had spread into major coffee-producing States of Brazil, including São Paulo, Paraná, Espiríto Santo, and Minas Gerais. Action against rust initially took the form of radical measures such as cutting and spraying or burning of infected trees, protective spraying in nearby areas, and establishment of a phytosanitary zone to isolate the disease east of a line between Belo Horizonte and Rio de Janeiro.

These measures were never sufficient, however, to eradicate rust from Brazil, and coffee producers in certain areas there either have replanted with rust-resistant varieties or resorted to controlling the disease with fungicide sprays.

Such measures placed hardships on small-scale, inefficient Brazilian producers, making for a more difficult regime of cultivation and production cost increases of around 20-30 percent. At the same time, however, it sparked major technological advances that have resulted in propagation of better, more disease-resistant varieties.

Because of the virulence of rust, Brazil's experience served as a warning to other Latin American countries that they too might face the problem some time in the future. Colombia several years ago drew up a detailed plan of attack should rust enter that country, and the Nicaraguans have used that plan to fight the outbreak in their country.

Central America and Mexico likewise have been preparing for the day when rust might appear, and have responded quickly to the Nicaraguan emergency. In Guatemala and El Salvador, for instance, the Ministry of Agriculture and the Coffee Growers' Association set up checkpoints at the border, sent teams to canvass all coffee-producing areas, and launched an educational campaign to spot and identify rust. Other nations have initiated similar programs, and there have been several intergovernmental meetings in Central America concerning the problem.

In addition, the Central American Organization for Agricultural Sanitation (OIRSA) has been active in helping countries establish safety procedures and border treatments to lessen dangers of country-to-country spread. With a disease spread by windborne and water-splashed spores, however, such treatment often cannot achieve total exclusion of the fungus.

Source of all this concern is a fungus that appears as orange-yellow spots, or pustules, on the underside of coffee leaves. Each pustule develops a mass of spores, which spread the disease to other leaves and plants—as many as 100,000 spores may be found in one such pustule. These spores can be carried in almost any way imaginable—wind, animals, people, insects, vehicles—to other coffee trees, resulting in infestation of widespread and often far-removed areas.

The rust fungus can survive and multiply only on living coffee trees, and spores must land on a coffee leaf within 15-20 days after release. Once well established, the rust may kill the coffee tree over a several-year period of defoliation, during which time yields are steadily reduced. □

ary when the rust was actively spreading, said that teams searched coffee areas each day for new outbreaks. Once rust was found, the teams sprayed all foliage with a mixture of chemicals, including herbicides, fungicides, diesel oil, detergent, and adhesives.

While the solution killed all foliage, it spared the trees, which will sprout new foliage within a few weeks' time. (One more-permanent change is the elimination of the many shade trees that once grew in the coffee area; these were destroyed when the coffee trees were defoliated and probably will not be allowed to grow back as densely as in the past.)

The Colombian plan also called for spraying of all trees within a 60-meter radius beyond the first area of treatment with a chemical mixture that included copper fungicide. Three days later, the plants were cut back to 30 centimeters in height, and the stubbed plants were again sprayed.

People, goods, and vehicles leaving the area were also sprayed with the fungicide as a precaution against transmitting the spores of the fungus to other parts of Nicaragua or neighboring countries. Coffee bags, for instance, were dried and fumigated with methyl bromide.

Although the original outbreak was brought under control soon after Dr. Laterell's visit, the emergency program will go on through August. This will extend through the June-July rainy season and into a short dry period in August, during which time attempts will be made to bring any new outbreaks under control.

The Nicaraguan Government has spent over US$6 million thus far to control the disease and expects to spend another $4 million before the end of August. The other coffee-producing countries of Central America are contributing to the effort and reportedly have pledged $4 million each for a total fund of $20 million, which will be supplemented by monies from the International Coffee Organization and other groups.

Each country also is carrying out an intensive educational campaign of its own, innundating citizens with posters, brochures, and media messages on the perils of coffee rust.

Yet the cost could go much higher—some say $350 million a year for chemical control in all of tropical America—should the rust become widely established.

"The big question now," said Dr. Imle, "is not whether rust will arrive, but when and how to treat it." One attitude is "let's just spray and live with it." Another posture is to take strong measures to prevent entry of the rust and then, if it arrives, introduce rust-resistant varieties.

The former approach might be feasible for producers of high-yielding coffee, such as El Salvadoran growers, who reportedly average about 1,200 kilograms per hectare compared with little more than 400 in some other areas of Central America. Similarly advantaged producers in Brazil have had good results from spraying done to control rust introduced into their areas since 1970.

But the vast majority of Central American coffee growers cannot afford the extra expense of an extensive spraying program. Moreover, the average coffee holding in this part of the world is only 5 hectares, sometimes on land so rugged that it cannot be reached by car and so steep that workers in some instances must tie them-

Top to bottom: Coffee trees in Nicaragua that were sprayed and cut back and are now showing new growth; teams with sprayers canvass rust-affected area; and coffee seedlings that will replace rust-susceptible varieties.

selves to trees to harvest the berries—hardly ideal conditions for rust-eradication efforts.

Also, the shade trees under which Central American coffee is grown may actually favor disease development and complicate disease control.

Probably the greatest hope for fighting rust in Central America comes from the rust-resistant varieties being developed at various research institutions in Portugal, Central America, Brazil, India, West Africa, and other countries concerned with coffee production. For instance, Portugal's Coffee Rust Research Center—established to support coffee industries in Portugal's onetime African colonies—has shown that the Híbrido de Timor variety is resistant to all of the 30 races of rust fungus.

The only problem is that these varieties are not quite ready for immediate large-scale commercial use. They must be crossed with the best commercial varieties to produce plants suited to the needs of each country.

Unfortunately, most coffee varieties now preferred by Central American growers have no resistance to rust. So, growers will have to be encouraged—through extensive education programs or the immediate threat of rust—either to plant rust-resistant varieties or ones that are high-yielding enough to make spraying worthwhile.

Whichever approach is taken will be an improvement over some of the traditional production methods used in parts of Central America. In fact, Dr. Imle thinks that rust-control efforts could spark extensive improvement in coffee technology and, in the end, a better, more price-stable product for both grower and consumer. □

China Wheat Purchases Top Major Changes in World Grain Situation

The most important new development in the world grain situation since May have been the continued large wheat purchases by the People's Republic of China (PRC), a reduced wheat and barley crop outlook in parts of North Africa and the Middle East, improved Canadian wheat prospects, and India's much lower wheat import requirements for 1977/78, according to USDA's June world grain report.[1]

Based on reports through June 10, the aggregate forecast for 1977 world wheat and coarse grain crops is 1,087 million metric tons, compared with the initial estimate of 1,089 million based on conditions reported through late April.

The Northern Hemisphere winter grain crop, which accounts for roughly one-third of the total world wheat and coarse grain crop, is now nearing maturity—and in some areas harvesting has begun. On the whole, the winter grain component of the 1977 world grain crop appears to have benefited from average or above average growing conditions. The main exceptions are China, North and South Korea, Mexico and several countries surrounding the Mediterranean Sea.

In Northern Europe, USSR, India, and the United States, which together account for about 70 percent of the Northern Hemisphere winter grain crops, conditions have been generally favorable, with record outturns expected in a number of other areas.

Earlier concern over Canada's spring grains have mostly disappeared following heavy precipitation during late May and early June. Thus, the estimate of Canadian wheat production has been raised 500,000 tons to 16.8 million.

Unfavorable weather continues to threaten crops in some major agricultural regions in the PRC. The effects of the drought gripping the North China Plain—China's major winter wheat producing region—may not have been fully overcome by recent light to moderate rain.

Crop prospects in the USSR are on the whole quite good, and a total grain crop of 215 million tons has been forecast by the United States Department of Agriculture Task Force on the USSR on the basis of conditions as of June 1. The forecast includes a wheat crop of 105 million tons and a coarse grain outturn at 95 million.

Prospects for wheat production in Morocco, Algeria, and Tunisia continue to look bleak despite reports of recent scattered rainfall. The result of the drought which began in early January is likely to be a 40 percent decline in Algeria's 1977 wheat crop to 1.5 million tons, and a 35 percent decline in Morocco's wheat output to 1.1 million tons, the lowest level in 10 years.

Tunisia's grain crops got off to a good start last fall, but the outlook now is for an output of 850,000 tons, the poorest in 6 years. Wheat and barley production estimates there have been reduced by 30 percent from planned levels of 1.2 million tons—and they could go lower. Localized dry conditions have also affected crop prospects in Syria and Jordan.

World wheat production for 1977/78 is currently forecast at 403 million tons, 1.5 percent above the earlier estimate, but 2.4 percent below last year's record. World coarse grain production for 1977/78 is estimated at 684 million tons, slightly below last season's record outturn of 691 million tons.

Despite the upward revision in import estimates for the PRC and a few other countries, the current forecast for total world wheat imports for 1977/78 remains unchanged at nearly 64 million tons, 4.3 million above the 1976/77 level.

The main recent development in world wheat trade was the purchase of 3.0 million tons of Canadian wheat by the PRC for August 1977 through July 1978 delivery. This sale increases PRC purchases to over 6 million tons for delivery in 1977/78 (July-June).

Further purchases are expected, at least from Southern Hemisphere origins, to provide additional deliveries in the first half of 1978. At this stage, therefore, China's wheat imports in 1977/78 seem likely to reach about 7.0 million tons.

Increases in 1977/78 import forecasts for other

[1] "World Grain Situation: 1977/78 Crop and Trade Developments," FG 9-77, June 13, 1977.

countries have been relatively small. These higher import estimates have been offset by a 1.5-million-ton reduction to 500,000 tons in the import estimate for India.

The current forecast of the 1977/78 world coarse grain trade is up only about 100,000 tons from the previous forecast to 74.9 million tons.

The estimate of U.S. coarse grain exports in 1977/78 (July-June) is unchanged at 42.0 million tons; wheat exports are also unchanged at 26.9 million tons. □

Continued from page 10

Bergland . . .

food-aid programs in several ways. We want to maintain food-aid levels even in years of tight supply. Food-grain reserves are one means to do so. We will make every effort to maintain our total level of food aid at a fair share of the World Food Conference target of 10 million tons.

We want to make greater use of food aid as a developmental tool through longer term support for agricultural development projects and by using funds generated from sales under concessionary food-aid programs for agreed-upon development projects.

We also are reviewing ways in which food aid can make a maximum contribution to development, especially in the poorest nations. I should add that the United States recently agreed to contribute up to 125,000 tons to the international emergency food reserves as part of our cooperation with other nations. □

Rain and Flooding Blur USSR Cotton Situation

Torrential rains and flooding in May and June may have helped to relieve the problem of a shortage of irrigation water in cotton-producing areas of Soviet Central Asia. However, the flooding is reported to have washed out some cotton plantings, although the full extent of the damage is yet unknown.

Early June reports indicate that torrential rains with hail and heavy flooding beginning in late May have caused crop damage in two Central Asian cotton-growing Republics—Kirgizia and Tadzhikistan.

The situation in Kirgizia has been further complicated by a sharp destructive earthquake, which occurred on June 3. Heavy precipitation, which probably caused some localized flooding in Uzbekistan, was again reported on June 20. However, this precipitation was not extensive.

Uzbekistan produces approximately two-thirds of the Soviet cotton crop, Tadzhikistan about 10 percent, and Kirgizia only 2 percent.

Reports from the Soviet Union indicate that irrigation water was unusually low in the country's major cotton-producing region.

In most years, the Soviet press has given much publicity to scanty or insufficient irrigation water supplies in Soviet Central Asia, the USSR cotton belt, during the cotton seeding and growing periods. Although the reports have suggested adverse effects on the size of cotton harvests, the USSR has consistently produced record or near-record cotton crops for several years (with the exception of 1975 when cold weather struck at harvest-time before all cotton had reached maturity).

This year, however, the publicity given to impending low irrigation water supplies—especially in Uzbekistan, the largest cotton-producing Republic in the USSR and in Soviet Central Asia—appears to have been somewhat more serious.

An editorial in early May in *Pravda Vostoka*—the official newspaper of the Uzbekistan Communist Party—reported that prolonged lack of precipitation and hot winds and dust storms during the preseeding period had dried the soil, thus necessitating early usage of irrigation water. As a result, a significant amount of Uzbekistan's water resources had already been expended.

In May, the amount of mountain water feeding into the major irrigation sources—the Amur-Darya, Syr-Darya, Surkhan-Darya, and Kashka-Darya Rivers—was expected to be 40-60 percent of the average of several years and significantly less than in 1976. Mountain water to the Zeravshan was expected to be 70-75 percent of average. Accumulation of water in Uzbekistan reservoirs was said to be 1 billion cubic meters less than that of a year earlier.

A Moscow radio broadcast also reported that Uzbekistan was experiencing drought conditions, that March and April rainfall was only 2 percent of normal, and that many farms had to resort to irrigating crops.

Issuance of an Uzbekistan Party decree on or about May 7 calling for proper usage and distribution of water resources on this year's crops may be a stronger indication that the low irrigation water situation this year could be a more serious problem than previously publicized. □

By Angel O. Byrne, economist, Foreign Demand and Competition Division, Economic Research Service.

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World Weather

USSR—Weather in the European USSR in the first part of June was a continuation of the generally cool and wet conditions evident over much of the area the last 10 days of May. All regions received some precipitation during the reporting period with the heaviest amounts — 15-30 millimeters (mm) generally, but up to 60 mm in places—recorded in the central and central black soil regions and in the southern and eastern Ukraine. Moderate rains fell over most of the Volga Valley, including the middle Volga region, where May precipitation was only two-thirds normal. Rainfall was light, however, in the southern Urals, an important spring wheat region with well below normal rainfall this spring.

Prospects for winter grains continue favorable with crop development generally about 10-15 days ahead of normal. Harvesting is expected to begin in the southern regions in about 2 weeks. Rainfall was generally light throughout most of the spring wheat area in western Siberia and northern Kazakhstan. Estimated soil moisture is generally good throughout these areas, but surface moisture is short in some places.

Asia—In the People's Republic of China, moderate-to-heavy rains fell throughout the northeast, an important region producing spring wheat, soybeans, and coarse grains. But precipitation was light over much of the North China Plain, China's major winter wheat belt, which has been suffering from drought since last winter. Heavy rains fell over most of the rice-growing areas south of the Yangtse River. In India, heavy rains over the western coastal regions were partly induced by a tropical cyclone that interrupted the normal monsoonal buildup in the southwest. Temperatures in the 100's continue over most of that country. Scattered light showers fell along the coasts in Australia, but newly planted winter grains in the interior received no significant rainfall.

Europe — Wet, cool weather returned to Western Europe, interrupting the hay harvest in some areas. Prospects for winter grains continue favorable in most areas. Light - to- moderate showers moistened the Po Valley of Italy, but southern Italy, which has been suffering from drought, was essentially without rainfall. Southern Spain, another drought area, also was dry. Light rains dampened the northern half of Eastern Europe, including Hungary, but the southernmost countries received mainly light scattered showers during the reporting period. Rainfall was scarce in Greece, while showers fell mainly outside the principal agricultural areas in Turkey.

Africa—North Africa—Morocco, Algeria, Tunisia—was essentially without precipitation last week. Drought since last winter has greatly reduced winter grain production in these areas. South Africa also was dry, but agricultural activity at this time of year is minimal.

South America — In Brazil, a cold front dropped temperatures in the coffee-producing state of Parana, but frosts occurred only at higher elevations and posed no threat to coffee trees. Rainfall was scattered and light in the main agricultural areas in the south and southeast. Light - to - moderate showers also fell over much of the grain areas in Argentina, where temperatures were generally above normal for the week.

North America—Heavy rains have alleviated the dry spell in the eastern corn belt, where crops were beginning to show some stress. Some dry spots, however, continue in the western corn belt, notably south-central Iowa. Light-to-moderate rains fell on the spring wheat areas in North Dakota and in eastern Saskatchewan and western Manitoba in Canadian Prairie Provinces. But there was no relief for southern Alberta which missed out on most of the shower activity of recent weeks. General showers brought some relief to Mid - Atlantic coastal States, where the dry crops and pastures were beginning to show signs of stress.

Badly needed rains also fell in the drought-afflicted Delta States. □

Correction: June 13, 1977, issue, page 5, table on Indian production of major oilseeds and vegetable oils, unit is 1,000 metric tons.